UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/930,004	08/15/2001	Noah J. Ternullo	12078-140	9114

26486 7590 02/09/2005

PERKINS, SMITH & COHEN LLP
ONE BEACON STREET
30TH FLOOR
BOSTON, MA 02108

EXAMINER	
LAMARRE, GUY J	
ART UNIT	**PAPER NUMBER**
2133	

DATE MAILED: 02/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/930,004	TERNULLO ET AL.	
	Examiner	Art Unit	
	Guy J. Lamarre, P.E.	2133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 September 2004* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *28-34* is/are allowed.

6)☒ Claim(s) *1-27 and 35-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 August 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

FINAL OFFICE ACTION

0. This office action is in response to Applicants' Amendment of *29 September 2004*.

0.1 **Claims 1-9, 11-28** and 30-**31** are amended; **Claims 34-37** are added. Claims 1-37 remain pending.

0.2 The rejections under 35 U.S.C. 101 and 112 and objections of record are withdrawn in response to Applicants' amendment

0.3 The indicated allowability of Claim 29 of record is maintained.

0.4 The prior art rejections of record are maintained in response to Applicants' Amendments.

Response to Arguments

1. Applicants' arguments have been fully considered: they are partly persuasive. As a result, **Claims 28, 30**-31 are allowed along with previously allowed **Claims 29, 33-34**. The newly amended context-relevant limitation is disclosed in US Pat. # 5,067,104 to **Krishnakumar et al.**

REMARKS

2. In response to **Claims 1-26, 34-37**, Applicants argue, on page 16 et seq., that the prior art of record does not teach the claimed invention, i.e., unidirectional protocol, context-relevant information.

Examiner notes that the prior art of record does not restrict the disclosed protocol exclusively to bi-directional protocol or to context-irrelevant information as alleged by Applicants.

Therefore, said claims are not distinguished over the prior art of record.

2.1 In response to **Claims 1-26, 34-37,** Applicants also allege, on page 18 last para., that there is no motivation to combine references as per formulation of record.

Examiner disagrees and notes that: To establish a prima facie case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. *In re Vaeck,* 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Therefore, such suggestion or motivation may be found not only in the references but also in the knowledge generally available to one of ordinary skill in the art.

Hence, "In determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution combination, or other modification." *In re Linter*, 458 F.2d 1013, 173 USPQ 560, 562 (CCPA 1972).

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 11192).

The rationale to modify or combine the prior art does not have to be expressly stated in the prior art; the rationale may be expressly or impliedly contained in the prior art or it may be reasoned from knowledge generally available to one of ordinary skill in the art, established scientific principles, or legal precedent established by prior case law. *In re Fine*, 837 F. 2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). See also *In re Eli Lilly & Co.*, 902 F.2d 943. 14 USPQ2d 1741 (Fed. Cir. 1990) (discussion of reliance on legal precedent); *In re Nilssen*, 851 F.2d 1401, 7 USPQ2d 1500, 1502. (Fed. Cir. 1988) (references do not have to explicitly suggest combining teachings); Ex parte Clanp. 227

USPQ 972 (Bd. Pat. App. & Inter. 1985); and Ex parte Levengood, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993) (reliance on logic and sound scientific reasoning).

Also in reference to Ex parte Levengood, 28USPQ2d, 1301, the Court stated, "Obviousness is a legal conclusion, the determination of which is a question of patent law. Motivation for combining the teachings of the various references need not be explicitly found in the references themselves, *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). Indeed, the examiner may provide an explanation based on logic and sound scientific reasoning that will support a holding of obviousness. *In re Soli*, 317 F.2d 941, 137 USPQ 797 (CCPA 1963)."

Claim Objections

3. **The claims in passim, e.g., Claims 1, 28,** are objected to for including "capable of:' It has been held that the recitation that an element is "capable of " performing a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison*, 69 USPQ 138.

Claim 37 is objected to for not further limiting Claim 35.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. Claim(s) 1-3, 35-37 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over RFC 793 – Transmission Control Protocol Specification (hereinafter TCP) in view of **Grooters** (US Patent No. 6,684,399) in further view of Krishnakumar et al.

As per claims 1, 35-37,

TCP substantially teaches of creating and transmitting data signals (i.e. segments/packets/frames) through a communication medium to receivers, see paragraph 1 of page 4. TCP further teaches of computing a checksum over the data, see Checksum paragraph on page 16. TCP further teaches of providing an integrity element, see pages 15-17, which the

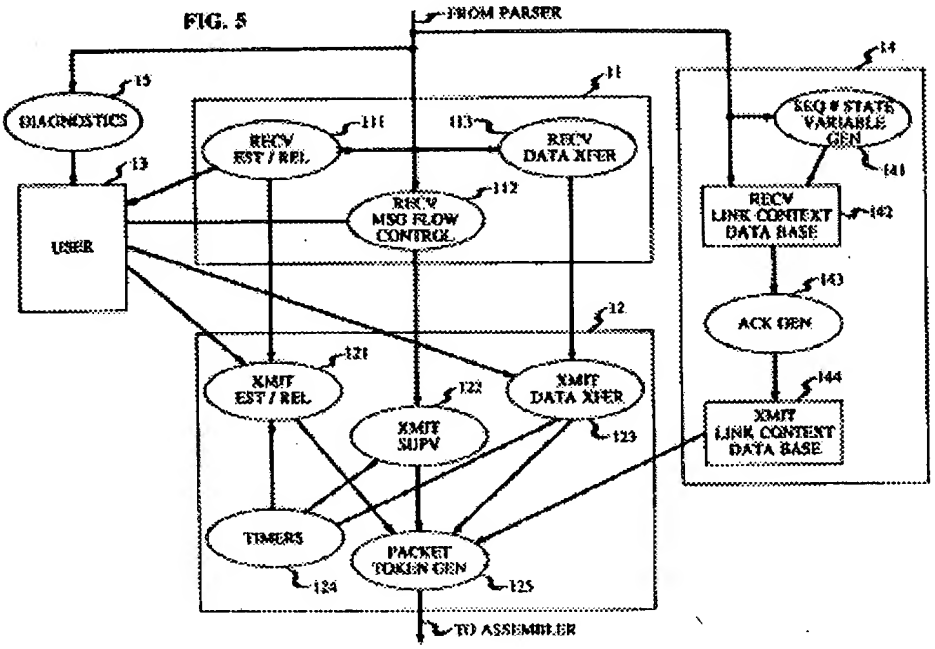
Examiner is interpreting as a header since it is essentially made of data (i.e. checksum, size, etc...) that will help determine the validity of the data frame. On pages 15-17, TCP teaches of an integrity element (header) that contains the checksum and how the integrity element (header) encapsulates (or associated with) one frame (or packet). On page 4, paragraph 3 teaches how the integrity element (header), specifically the checksum, can be used to determine if the received frame/data subset (or packet) is intact/valid or damaged. Further, in paragraph 1 of page 15, TCP teaches how the header and data are sent together as segments (i.e. broadcast signals). In paragraph 1 of page 4, TCP further teaches that the broadcast signals (i.e. segments) are transferred in both directions, hence TCP teaches the limitation of transmitting signals to receivers. In paragraph 6 of page 40, TCP further teaches of transmitting the signals over an established connection, hence TCP teaches the limitation of transmitting through communication medium to the device.

While TCP does explicitly teach packeting or packaging bytes into frames (or packets) containing a subset of the bytes, see paragraph 1 of page 4, TCP fails to particularly mention the term: "parsing."

However Grooters, in an analogous art, discloses a network communications *wherein* such techniques are described. {See **Grooters,** Id., Fig. 3 at step 326 wherein parsing routine is executed for broadcasting data/HTML/markup-language/XML documents.} **Therefore**, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the procedure in **TCP** by including therein a parsing technique as taught by **Grooters,** because such modification would provide the procedure disclosed in **TCP** with a technique whereby "*content information is broken down and analyzed.*" {See **Grooters,** Fig. 3 at step 326.}

While TCP/**Grooters** substantially the claimed data signal generation, TCP/**Grooters** fails to disclose in detail that data signal comprises context-relevant information.

However Krishnakumar et al., in an analogous art, discloses, in "*Programmable protocol engine having context free and context dependent processes*" a network communications *wherein* such techniques are described. {See **Krishnakumar,** Id., Fig. 5:Block 142.



Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the procedure in TCP/**Grooters** by including therein a *context dependent* techniques as taught by **Krishnakumar,** because such modification would provide the procedure disclosed in TCP/**Grooters** with a technique whereby "*Connection context data base process 14 also receives information from the parser and it comprises a sequence number and state variable generator process 141 which supplies information to a receiver link context database 142. Database 142 also receives information from the parser, and it delivers*

information to acknowledge generator process 143. Process 143 supplies information to transmitter link context database 144.." {See **Krishnakumar,** Fig. 3 at Block 142.}

As per claim 2,

TCP/**Grooters** further teaches of an integrity element (header) that comprises a size value, see page 17, paragraph 2 where the TCP length is described. Further, it would have been obvious to one of ordinary skill in the art to include both the checksum operation and seed value. If these values were not previously agreed upon by the communication devices, then one of ordinary skill in the art would obviously want to transmit these values so as to allow the receiving device to be able to calculate the checksum and validate/invalidate successfully.

Further, with respect to the operator to compute the checksum, as is common in the art, checksums are typically calculated with XORs or summing in mod 2 arithmetic. Further, the specifications do not teach of any checksum calculation techniques other than XOR when disclosing known techniques to calculate the checksum. Therefore the need to transmit the operator along with the integrity element is not clear (especially if the only admitted operation is XOR). While it is understood that checksum can be calculated various specific ways (i.e. CRC), the operator used is typically the XOR.

It is further unclear why the checksum operation and seed values are not uniformly agreed upon beforehand so as to save bandwidth (i.e. have to transmit less bits) and save calculation time (i.e. immediately calculate checksum upon receiving as opposed to receiving the packet and read out the operation and then calculate the checksum).

As per claim 3,

Grooters does disclose marked-up-language/XML documents in Fig. 3 *server 212 or network 222*. Or equivalently, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to have the data signal contain an XML element. Essentially, this is akin to a user on a network, possibly the Internet, requesting an XML document (which obviously contains XML elements), having the document framed (or packeted up) and transmitted off to the receiver. Simply put, the data that the frame/packet contains can be comprised of almost any type of transferable data, (i.e. XML document with XML elements, HTML document etc). Also see **Grooters,** Id., Fig. 3 at step 326 wherein parsing routine is executed for broadcasting data/HTML/markup-language/XML documents.

4.1 Claim(s) 4 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over RFC 793 – Transmission Control Protocol Specification (hereinafter TCP), **Krishnakumar** and **Grooters** (US Patent No. 6,684,399) in view of admitted prior art "Specifications" (hereinafter Specs).

As per claim 4,

TCP/**Grooters** as noted above in claim 1 and later in claim 3 substantially teaches of the limitations of claim 4. TCP/**Grooters** does not teach of transmitting the signal as a diffuse infrared signal. Nonetheless, TCP/**Grooters** does teach of establishing communication connections.

Specs, in an analogous art, teaches of diffuse optical communication as a common optical communication protocol, see paragraph 88 on page 28.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to transmit the frames/packets/broadcast signal of TCP/**Grooters** using the optical communication protocol. This modification would have been obvious because one of ordinary skill in the art would have been motivated by the suggestion provided by Specs that diffuse optical communication protocol is a commonly used protocol and hence communication method.

4.2 Claim(s) 5-9 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over RFC 793 – Transmission Control Protocol Specification (hereinafter TCP) in view of **Grooters** (US Patent No. 6,684,399) and Krishnakumar et al.

As per claim 5,

TCP substantially teaches of exchanging (and hence transmitting and receiving) segments/packets/data signals having a plurality of bytes in paragraph 1 of page 4 and paragraph 6 of page 40. TCP further teaches of creating frames/packets and headers (integrity elements) to transmit data, see paragraph 1 on page 4 and pages 15-17, and of using the checksum to ensure reliability, see paragraph 3, page 4. By teaching of creating the data and communicating/transferring it in a specific manner, the Examiner is interpreting that TCP is teaching of both how to send and receive the data. When read in this light, it is clear that if TCP teaches of how to create frames (packets) and associated integrity elements (headers) and how to combine the frames and integrity elements (i.e. append the header to the packet), then TCP teaches how to detect and separate packets/frames as well. Further, with TCP teaching of headers and what they are comprised of on pages 15-17, it is clear that TCP teaches of determining the contents of the integrity element (header). Further, TCP explicitly teaches of using the checksum (which is one of the contents of the header/integrity element) to disregard damaged segments/packets, see paragraph 3 on page 4.

While TCP does explicitly teach packeting or packaging bytes into frames (or packets) containing a subset of the bytes, see paragraph 1 of page 4 and means to reverse such frame packeting or packaging, TCP fails to particularly mention that such frame reversal is for reverting a "parsing" routine.

However **Grooters,** in an analogous art, discloses a network communications *wherein* such techniques are described. {See **Grooters,** Id., Fig. 3 at step 326 wherein parsing routine/reversal-thereof is executed for broadcasting data/HTML/markup-language/XML documents.} **Therefore,** it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the procedure in **TCP** by including therein a parsing technique as taught by **Grooters,** because such modification would provide the

procedure disclosed in **TCP** with a technique whereby "*content information is broken down and analyzed.*" {See **Grooters,** Fig. 3 at step 326.}

While TCP/**Grooters** substantially the claimed data signal generation, TCP/**Grooters** fails to disclose in detail that data signal comprises context-relevant information.

However Krishnakumar et al., in an analogous art, discloses, in "*Programmable protocol engine having context free and context dependent processes*" a network communications *wherein* such techniques are described. {See **Krishnakumar,** Id., Fig. 5:Block 142.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the procedure in TCP/**Grooters** by including therein a *context dependent* techniques as taught by **Krishnakumar,** because such modification would provide the procedure disclosed in TCP/**Grooters** with a technique whereby "*Connection context data base process 14 also receives information from the parser and it comprises a sequence number and state variable generator process 141 which supplies information to a receiver link context database 142. Database 142 also receives information from the parser, and it delivers information to acknowledge generator process 143. Process 143 supplies information to transmitter link context database 144..*" {See **Krishnakumar,** Fig. 3 at Block 142.}

As per claim 6,

TCP/**Grooters** substantially teaches, as noted above in claim 5, the limitations of claim 6.

With respect to the limitations of claim 6, TCP further teaches of a checksum that is calculated over its associated frame/packet, see pages 15-17 and specifically the Checksum paragraph of page 16.

As per claims 7 and 8,

TCP/**Grooters** substantially teaches, as noted above in claim 5, the limitations of claim 7.

With respect to the limitations of claim 7, TCP further teaches of checking a checksum at the receiver to ensure that the segment is not damaged, see paragraph 3 of page 4. Clearly, if the checksum is calculated upon receipt and matches the transmitted checksum, then the segment/frame/packet will be validated, otherwise, when the two checksums don't match, the "damaged" one will be discarded or invalidated.

As per claim 9,

TCP/**Grooters** substantially teaches, as noted above in claim 5, the limitations of claim 9.

With respect to the limitations of claim 9, TCP further teaches of an integrity element (header) that comprises a size value, see page 17, paragraph 2 where the TCP length is described. Further, it would have been obvious to one of ordinary skill in the art to include both the checksum operation and seed value. If these values were not previously agreed upon by the communication devices, then one of ordinary skill in the art would obviously want to transmit these values so as to allow the receiving device to be able to calculate the checksum and validate/invalidate successfully.

Further, with respect to the operator to compute the checksum, as is common in the art, checksums are typically calculated with XORs or summing in mod 2 arithmetic. Further, the specifications do not teach of any checksum calculation techniques other than XOR when disclosing known techniques to calculate the checksum. Therefore the need to transmit the operator along with the integrity element is not clear (especially if the only admitted operation is XOR). While it is understood that checksum can be calculated various specific ways (i.e. CRC), the operator used is typically the XOR.

It is further unclear why the checksum operation and seed values are not uniformly agreed upon beforehand so as to save bandwidth (i.e. have to transmit less bits) and save

calculation time (i.e. immediately calculate checksum upon receiving as opposed to receiving the packet and read out the operation and then calculate the checksum).

4.3 Claim(s) 10 and 11 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over RFC 793 – Transmission Control Protocol Specification (hereinafter TCP) and **Grooters** (US Patent No. 6,684,399) in view of admitted prior art "Specifications" (hereinafter Specs).

As per claim 10

TCP/**Grooters**, as noted above in claim 5, substantially teaches of the limitations of claim 10. TCP/**Grooters** does not teach of transmitting the signal as a diffuse infrared signal. Nonetheless, TCP/**Grooters** does teach of establishing communication connections.

Specs, in an analogous art, teaches of diffuse optical communication as a common optical communication protocol, see lines 3-6 of paragraph 88 on page 28.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to transmit the frames/packets/broadcast signal of TCP/**Grooters** using the optical communication protocol. This modification would have been obvious because one of ordinary skill in the art would have been motivated by the suggestion provided by Specs that diffuse optical communication protocol is a commonly used protocol and hence communication method.

As per claim 11,

TCP/**Grooters**, as noted above in claim 5 and later in claim 10, substantially teaches of the limitations of claim 11. TCP/**Grooters** does not teach of data signal being created by modulating an electric light.

Specs, in an analogous art, teaches of modulating an electric light to generate optical signals as being known in the art, see lines 1-5 of paragraph 161 of page 55.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to create frames/packets/broadcast signal of TCP/**Grooters** by modulating an electric light. This modification would have been obvious to one of ordinary skill in the art would

because one skilled in the art would have known of the techniques as mentioned by Specs. Further, since Specs discloses that the techniques are known in the art, one skilled in the art would readily be able to modulate light so as to generate the optical signals with which the data signals are transferred over.

4.4 Claim(s) 12,13 and 15 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over RFC 793 – Transmission Control Protocol Specification (hereinafter TCP) in view of **Grooters** (US Patent No. 6,684,399) and **Krishnakumar**.

As per claim 12,

TCP substantially teaches of creating and transmitting data signals (i.e. packets/frames) through a communication medium to receivers see paragraph 1 of page 4. TCP further teaches of computing a checksum over the data, see Checksum paragraph on page 16. TCP further teaches of providing an integrity element, see pages 15-17, which the Examiner is interpreting as a header since it is essentially made of data (i.e. checksum, size, etc...) that will help determine the validity of the data frame. On pages 15-17, TCP teaches of an integrity element (header) that contains the checksum and how the integrity element (header) encapsulates (or associated with) one frame (or packet). On page 4, paragraph 3 teaches how the integrity element (header), specifically the checksum, can be used to determine if the received frame/data subset (or packet) is intact/valid or damaged. Further, in paragraph 1 of page 15, TCP teaches how the header and data are sent together as segments (i.e. broadcast signals). In paragraph 1 of page 4, TCP further teaches that the broadcast signals (i.e. segments) are transferred in both directions, hence TCP teaches the limitation of transmitting signals to receivers. In paragraph 6 of page 40, TCP further teaches of transmitting the signals over an established connection, hence TCP teaches the limitation of transmitting through communication medium to the device.

While TCP does explicitly teach packeting or packaging bytes into frames (or packets) containing a subset of the bytes, see paragraph 1 of page 4, TCP fails to particularly mention the term: "parsing."

However **Grooters,** in an analogous art, discloses a network communications *wherein* such techniques are described. {See **Grooters,** Id., Fig. 3 at step 326 wherein parsing routine is executed for broadcasting data/HTML/markup-language/XML documents.} **Therefore**, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the procedure in **TCP** by including therein a parsing technique as taught by **Grooters,** because such modification would provide the procedure disclosed in **TCP** with a technique whereby "*content information is broken down and analyzed.*" {See **Grooters,** Fig. 3 at step 326.}

While TCP/**Grooters** does not explicitly teach of making the transmission available for handheld devices, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the broadcast signal available for a handheld device. Handheld devices (i.e. PDAs) are essentially handheld computers that can process information whether received via their infrared port or through their physical port. One skilled in the art would obviously want a handheld device to be able to receive information so as to be able to communicate with it.

Further, **while** TCP does not explicitly teach of apparatuses, devices, or computer readable executable code embedded to carry out the methods taught, **Grooters** does in Fig. 3 server 212. Or equivalently, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teachings in some type of hardware or computer executable code once the method is known/determined.

While TCP/**Grooters** substantially the claimed data signal generation, TCP/**Grooters** fails to disclose in detail that data signal comprises context-relevant information.

However Krishnakumar et al., in an analogous art, discloses, in "*Programmable protocol engine having context free and context dependent processes*" a network communications *wherein* such techniques are described. {See **Krishnakumar,** Id., Fig. 5:Block 142.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the procedure in TCP/**Grooters** by including therein a *context dependent* techniques as taught by **Krishnakumar,** because such modification would provide the procedure disclosed in TCP/**Grooters** with a technique whereby "*Connection context data base process 14 also receives information from the parser and it comprises a sequence number and state variable generator process 141 which supplies information to a receiver link context database 142. Database 142 also receives information from the parser, and it delivers information to acknowledge generator process 143. Process 143 supplies information to transmitter link context database 144..*" {See **Krishnakumar,** Fig. 3 at Block 142.}

As per claim 13,

Grooters does disclose marked-up-language/XML documents in Fig. 3 *server 212 or network 222*. Or equivalently, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the data signal contain an XML element. Essentially, this is akin to a user on a network, possibly the Internet, requesting an XML document (which obviously contains XML elements), having the document framed (or packeted up) and transmitted off to the receiver. Simply put, the data that the frame/packet contains can be comprised of almost any type of transferable data, (i.e. XML document with XML elements, HTML document etc).

As per claim 15,

TCP further teaches of an integrity element (header) that comprises a size value, see page 17, paragraph 2 where the TCP length is described. Further, it would have been obvious to one of ordinary skill in the art to include both the checksum operation and seed value. If these values were not previously agreed upon by the communication devices, then one of ordinary skill in the art would obviously want to transmit these values so as to allow the receiving device to be able to calculate the checksum and validate/invalidate successfully.

Further, with respect to the operator to compute the checksum, as is common in the art, checksums are typically calculated with XORs or summing in mod 2 arithmetic. Further, the specifications do not teach of any checksum calculation techniques other than XOR when speaking known techniques to calculate the checksum. Therefore the need to transmit the operator along with the integrity element is not clear (especially if the only admitted operation is XOR). While it is understood that checksum can be calculated various specific ways (i.e. CRC), the operator used is typically the XOR.

4.5 Claim(s) 14 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over RFC 793 – Transmission Control Protocol Specification (hereinafter TCP) and **Grooters** (US Patent No. 6,684,399) in view of admitted prior art "Specifications" (hereinafter Specs).

As per claim 14,

TCP/**Grooters** as noted above in claim 12 substantially teaches of the limitations of claim 14. TCP/**Grooters** does not teach of transmitting the signal as a diffuse infrared signal. Nonetheless, TCP/**Grooters** does teach of establishing communication connections.

Specs, in an analogous art, teaches of diffuse optical communication as a common optical communication protocol, see paragraph 88 on page 28.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to transmit the frames/packets/broadcast signal of TCP using the optical

communication protocol. This modification would have been obvious because one of ordinary skill in the art would have been motivated by the suggestion provided by Specs that diffuse optical communication protocol is a commonly used protocol and hence communication method.

4.6 Claim(s) 16-19 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over RFC 793 – Transmission Control Protocol Specification (hereinafter TCP) and **Grooters** (US Patent No. 6,684,399).

As per claim 16,

TCP substantially teaches of exchanging (and hence transmitting and receiving) segments/packets/data signals having a plurality of bytes in paragraph 1 of page 4 and paragraph 6 of page 40. TCP further teaches of creating frames/packets and headers (integrity elements) to transmit data, see paragraph 1 on page 4 and pages 15-17 and of using the checksum to ensure reliability, see paragraph 3, page 4. By teaching of creating the data and communicating/transferring it in a specific manner, the Examiner is interpreting that TCP is teaching of both how to send and receive the data. When read in this light, it is clear that if TCP teaches of how to create frames (packets) and associated integrity elements (headers) and how to combine the frames and integrity elements (i.e. append the header to the packet), then TCP teaches how to detect and separate packets as well. Further, with TCP teaching of headers and what they are comprised of on pages 15-17, it is clear that TCP teaches of determining the contents of the integrity element (header). Further, TCP explicitly teaches of using the checksum (which is one of the contents of the header/integrity element) to disregard damaged segments/packets, see paragraph 3 on page 4. TCP further teaches of a checksum that is calculated over its associated frame/packet, see pages 15-17 and specifically the Checksum paragraph of page 16. TCP further teaches of checking a checksum at the receiver to ensure that the segment is not damaged, see paragraph 3 of page 4. Clearly, if the checksum is calculated upon receipt and matches the transmitted checksum, then the segment/frame/packet will be

validated, otherwise, when the two checksums don't match, the "damaged" one will be discarded or invalidated. Further, TCP teaches of passing the frames/segments/packets on if the checksums match, see paragraph 3 of page 4, specifically where TCP mentions discarding damaged segments (i.e. segments in which the checksums do not match) and keeping/passing on those that do match.

While TCP does explicitly teach packeting or packaging bytes into frames (or packets) containing a subset of the bytes, see paragraph 1 of page 4 and means to reverse such frame packeting or packaging, TCP fails to particularly mention that such frame reversal is for reverting a "parsing" routine.

However Grooters, in an analogous art, discloses a network communications *wherein* such techniques are described. {See **Grooters,** Id., Fig. 3 at step 326 wherein parsing routine/reversal-thereof is executed for broadcasting data/HTML/markup-language/XML documents.}

While TCP does not explicitly teach of apparatuses, devices, or computer readable executable code embedded to carry out the methods taught, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teachings in some type of hardware or computer executable code once the method is known/determined.

As per claim 17,

Grooters does disclose marked-up-language/XML documents in Fig. 3 *server 212 or network 222*. Or equivalently, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the data signal contain an XML element. Essentially, this is akin to a user on a network, possibly the Internet, requesting an XML document (which obviously contains XML elements), having the document framed (or packeted up) and transmitted off to the receiver. Simply put, the data that the frame/packet contains can be

comprised of almost any type of transferable data, (i.e. XML document with XML elements, HTML document etc). Also see **Grooters,** Id., Fig. 3 at step 326 wherein parsing routine is executed for broadcasting data/HTML/markup-language/XML documents.

As per claim 18,

TCP further teaches of discarding the frames/segments/packets on if the checksums match, see paragraph 3 of page 4, specifically where TCP mentions discarding damaged segments (i.e. segments in which the checksums do not match).

As per claim 19,

TCP further teaches of an integrity element (header) that comprises a size value, see page 17, paragraph 2 where the TCP length is described. Further, it would have been obvious to one of ordinary skill in the art to include both the checksum operation and seed value. If these values were not previously agreed upon by the communication devices, then one of ordinary skill in the art would obviously want to transmit these values so as to allow the receiving device to be able to calculate the checksum and validate/invalidate successfully.

Further, with respect to the operator to compute the checksum, as is common in the art, checksums are typically calculated with XORs or summing in mod 2 arithmetic. Further, the specifications do not teach of any checksum calculation techniques other than XOR when speaking known techniques to calculate the checksum. Therefore the need to transmit the operator along with the integrity element is not clear (especially if the only admitted operation is XOR). While it is understood that checksum can be calculated various specific ways (i.e. CRC), the operator used is typically the XOR.

It is further unclear why the checksum operation and seed values are not uniformly agreed upon beforehand so as to save bandwidth (i.e. have to transmit less bits) and save

calculation time (i.e. immediately calculate checksum upon receiving as opposed to receiving the packet and read out the operation and then calculate the checksum).

4.7 Claim(s) 20-22 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over RFC 793 – Transmission Control Protocol Specification (hereinafter TCP) and **Grooters** (US Patent No. 6,684,399) and **Krishnakumar**.

As per claim 20,

TCP substantially teaches of creating and transmitting data signals (i.e. packets/frames) through a communication medium to receivers see paragraph 1 of page 4. TCP further teaches of parsing (or packeting or packaging) bytes into frames (or packets) containing a subset of the bytes, see paragraph 1 of page 4. TCP further teaches of computing a checksum over the data, see Checksum paragraph on page 16. TCP further teaches of providing an integrity element, see pages 15-17, which the Examiner is interpreting as a header since it is essentially made of data (i.e. checksum, size, etc...) that will help determine the validity of the data frame. On pages 15-17, TCP teaches of an integrity element (header) that contains the checksum and how the integrity element (header) encapsulates (or associated with) one frame (or packet). On page 4, paragraph 3 teaches how the integrity element (header), specifically the checksum, can be used to determine if the received frame/data subset (or packet) is intact/valid or damaged. Further, in paragraph 1 of page 15, TCP teaches how the header and data are sent together as segments (i.e. broadcast signals). In paragraph 1 of page 4, TCP further teaches that the broadcast signals (i.e. segments) are transferred in both directions, hence TCP teaches the limitation of transmitting signals to receivers. In paragraph 6 of page 40, TCP further teaches of transmitting the signals over an established connection, hence TCP teaches the limitation of transmitting through communication medium to the device.

While TCP does explicitly teach packeting or packaging bytes into frames (or packets) containing a subset of the bytes, see paragraph 1 of page 4, TCP fails to particularly mention the term: "parsing."

However **Grooters,** in an analogous art, discloses a network communications *wherein* such techniques are described. {See **Grooters,** Id., Fig. 3 at step 326 wherein parsing routine is executed for broadcasting data/HTML/markup-language/XML documents.} **Therefore**, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the procedure in **TCP** by including therein a parsing technique as taught by **Grooters,** because such modification would provide the procedure disclosed in **TCP** with a technique whereby "*content information is broken down and analyzed.*" {See **Grooters,** Fig. 3 at step 326.}

While TCP does not explicitly teach of making the broadcast signal available for transmission to a receiving device, **Grooters** does disclose such data transfer in Fig. 3 *server 212 or network 222*. Or equivalently, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the broadcast signal available for the transmission. TCP, in paragraph 6 of page 40, does teach of a connection that is established and data is communicated between senders and receivers. Therefore making the signal available for transmission to a receiving device must occur since TCP teaches that a connection is established and data/segments are communicated/exchanged.

While TCP/**Grooters** substantially the claimed data signal generation, TCP/**Grooters** fails to disclose in detail that data signal comprises context-relevant information.

However Krishnakumar et al., in an analogous art, discloses, in "*Programmable protocol engine having context free and context dependent processes*" a network

communications *wherein* such techniques are described. {See **Krishnakumar,** Id., Fig. 5:Block 142.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the procedure in TCP/**Grooters** by including therein a *context dependent* techniques as taught by **Krishnakumar,** because such modification would provide the procedure disclosed in TCP/**Grooters** with a technique whereby "*Connection context data base process 14 also receives information from the parser and it comprises a sequence number and state variable generator process 141 which supplies information to a receiver link context database 142. Database 142 also receives information from the parser, and it delivers information to acknowledge generator process 143. Process 143 supplies information to transmitter link context database 144..*" {See **Krishnakumar,** Fig. 3 at Block 142.}

As per claim 21,

TCP further teaches of an integrity element (header) that comprises a size value, see page 17, paragraph 2 where the TCP length is described. Further, it would have been obvious to one of ordinary skill in the art to include both the checksum operation and seed value. If these values were not previously agreed upon by the communication devices, then one of ordinary skill in the art would obviously want to transmit these values so as to allow the receiving device to be able to calculate the checksum and validate/invalidate successfully.

Further, with respect to the operator to compute the checksum, as is common in the art, checksums are typically calculated with XORs or summing in mod 2 arithmetic. Further, the specifications do not teach of any checksum calculation techniques other than XOR when speaking known techniques to calculate the checksum. Therefore the need to transmit the operator along with the integrity element is not clear (especially if the only admitted operation is

XOR). While it is understood that checksum can be calculated various specific ways (i.e. CRC), the operator used is typically the XOR.

It is further unclear why the checksum operation and seed values are not uniformly agreed upon beforehand so as to save bandwidth (i.e. have to transmit less bits) and save calculation time (i.e. immediately calculate checksum upon receiving as opposed to receiving the packet and read out the operation and then calculate the checksum).

As per claim 22,

Grooters does disclose marked-up-language/XML documents in Fig. 3 *server 212 or network 222*. Or equivalently, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the data signal contain an XML element. Essentially, this is akin to a user on a network, possibly the Internet, requesting an XML document (which obviously contains XML elements), having the document framed (or packeted up) and transmitted off to the receiver. Simply put, the data that the frame/packet contains can be comprised of almost any type of transferable data, (i.e. XML document with XML elements, HTML document etc).

4.8 Claim(s) 23 and 24 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over RFC 793 – Transmission Control Protocol Specification (hereinafter TCP) and **Grooters** (US Patent No. 6,684,399) in view of admitted prior art "Specifications" (hereinafter Specs).

As per claim 23

TCP/**Grooters**, as taught above in claim 20, substantially teaches of the limitations of claim 23. TCP, however, does not teach of transmitting the signal as a diffuse infrared signal. Nonetheless, TCP/**Grooters** does teach of establishing communication connections.

Specs, in an analogous art, teaches of diffuse optical communication as a common optical communication protocol, see line see lines 3-6 of paragraph 88 on page 28.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to transmit the frames/packets/broadcast signal of TCP/**Grooters** using the optical communication protocol. This modification would have been obvious because one of ordinary skill in the art would have been motivated by the suggestion provided by Specs that diffuse optical communication protocol is a commonly used protocol and hence communication method.

As per claim 24,

TCP/**Grooters**, as taught above in claim 20, substantially teaches of the limitations of claim 24. TCP/**Grooters** does not teach of data signal being created by modulating an electric light.

Specs, in an analogous art, teaches of modulating an electric light to generate optical signals as being known in the art, see line see lines 1-5 of paragraph 161 of page 55.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to create frames/packets/broadcast signal of TCP/**Grooters** by modulating an electric light. This modification would have been obvious to one of ordinary skill in the art would because one skilled in the art would have known of the techniques as mentioned by Specs. Further, since Specs discloses that the techniques are known in the art, one skilled in the art would readily be able to modulate light so as to generate the optical signals with which the data signals are transferred over.

4.9 Claim(s) 25-27 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over RFC 793 – Transmission Control Protocol Specification (hereinafter TCP) and **Grooters** (US Patent No. 6,684,399) and **Krishnakumar**.

As per claim 25,

TCP substantially teaches of exchanging (and hence transmitting and receiving) segments/packets/data signals having a plurality of bytes in paragraph 1 of page 4 and paragraph 6 of page 40. TCP further teaches of creating frames/packets and headers (integrity elements) to

transmit data, see paragraph 1 on page 4 and pages 15-17 and of using the checksum to ensure reliability, see paragraph 3, page 4. By teaching of creating the data and communicating/transferring it in a specific manner, the Examiner is interpreting that TCP is teaching of both how to send and receive the data. When read in this light, it is clear that if TCP teaches of how to create frames (packets) and associated integrity elements (headers) and how to combine the frames and integrity elements (i.e. append the header to the packet), then TCP teaches how to detect and separate packets as well. Further, with TCP teaching of headers and what they are comprised of on pages 15-17, it is clear that TCP teaches of determining the contents of the integrity element (header). Further, TCP explicitly teaches of using the checksum (which is one of the contents of the header/integrity element) to disregard damaged segments/packets, see paragraph 3 on page 4.

While TCP does explicitly teach packeting or packaging bytes into frames (or packets) containing a subset of the bytes, see paragraph 1 of page 4 and means to reverse such frame packeting or packaging, TCP fails to particularly mention that such frame reversal is for reverting a "parsing" routine.

However **Grooters,** in an analogous art, discloses a network communications *wherein* such techniques are described. {See **Grooters,** Id., Fig. 3 at step 326 wherein parsing routine/reversal-thereof is executed for broadcasting data/HTML/markup-language/XML documents.}

While TCP/**Grooters** substantially the claimed data signal generation, TCP/**Grooters** fails to disclose in detail that data signal comprises context-relevant information.

However Krishnakumar et al., in an analogous art, discloses, in "*Programmable protocol engine having context free and context dependent processes*" a network

communications *wherein* such techniques are described. {See **Krishnakumar,** Id., Fig. 5:Block 142.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the procedure in TCP/**Grooters** by including therein a *context dependent* techniques as taught by **Krishnakumar,** because such modification would provide the procedure disclosed in TCP/**Grooters** with a technique whereby "*Connection context data base process 14 also receives information from the parser and it comprises a sequence number and state variable generator process 141 which supplies information to a receiver link context database 142. Database 142 also receives information from the parser, and it delivers information to acknowledge generator process 143. Process 143 supplies information to transmitter link context database 144..*" {See **Krishnakumar,** Fig. 3 at Block 142.}

As per claims 26 and 27,

TCP substantially teaches, as noted above in claim 25, the limitations of claims 26 and 27. With respect to the limitations of claims 26 and 27, TCP further teaches of checking a checksum at the receiver to ensure that the segment is not damaged, see paragraph 3 of page 4. Clearly, if the checksum is calculated upon receipt and matches the transmitted checksum, then the segment/frame/packet will be validated, otherwise, when the two checksums don't match, the "damaged" one will be discarded or invalidated.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609(B)(2)(i). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH

shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5.1 Any response to this action should be mailed to:

Commissioner of Patents and Trademarks, Washington, D.C. 20231

or faxed to: (703) 872-9306 for all formal communications.

Hand-delivered responses should be brought to Customer Services, 220 20th Street S., Crystal Plaza II, Lobby, Room 1B03, Arlington, VA 22202.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Guy J. Lamarre, P.E., whose telephone number is (571) 272-3826. The examiner can normally be reached on Monday to Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert De Cady, can be reached at (571) 272-3819.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-3609.

Information regarding the status of an application may also be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Guy J. Lamarre, P.E
Primary Examiner
1/24/05